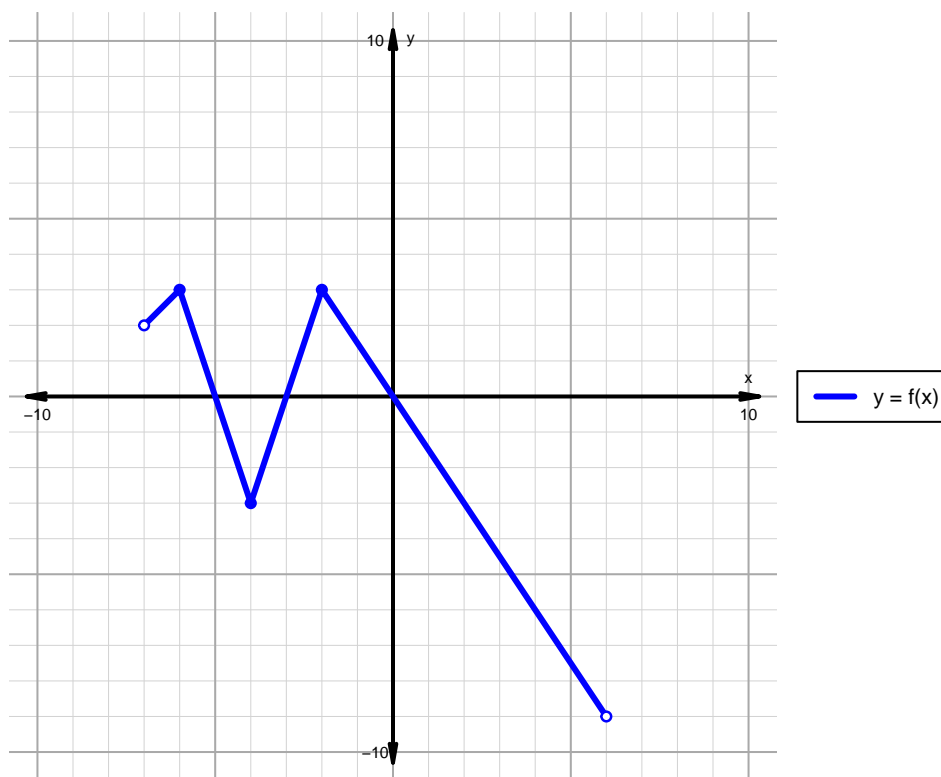


Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Intervals, Transformations, and Slope Solution (version 18)**

1. The function  $f$  is graphed below.

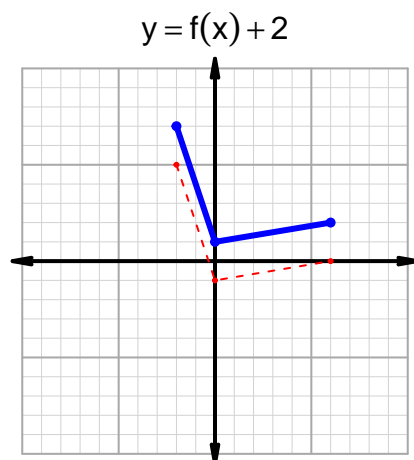
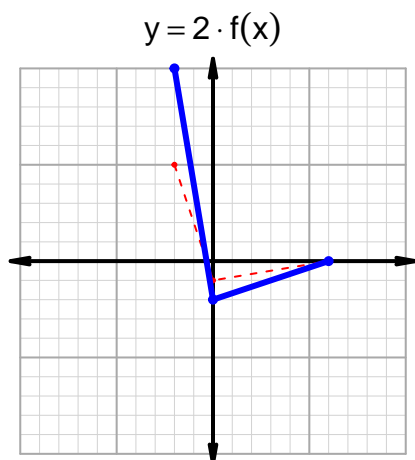
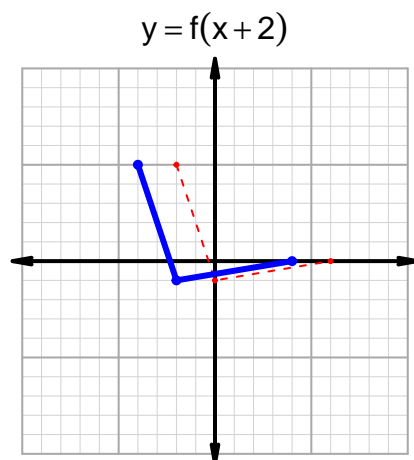
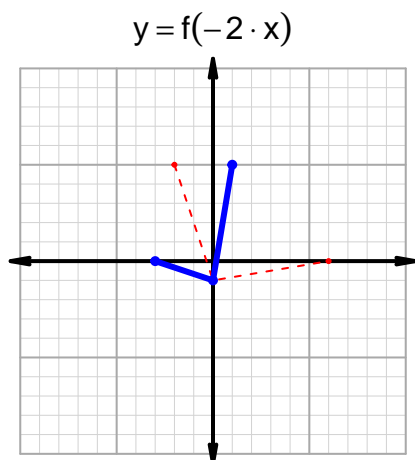


Indicate the following intervals using interval notation. Remember, you can use  $\cup$  between two intervals to indicate the union. Except for range, all intervals will indicate  $x$  values; this is standard.

Feature	Where
Positive	$(-7, -5) \cup (-3, 0)$
Negative	$(-5, -3) \cup (0, 6)$
Increasing	$(-7, -6) \cup (-4, -2)$
Decreasing	$(-6, -4) \cup (-2, 6)$
Domain	$(-7, 6)$
Range	$(-9, 3)$

## Intervals, Transformations, and Slope Solution (version 18)

2. In the four graphs below,  $y = f(x)$  is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.



3. Let function  $g$  be defined by the table below. Use the formula  $\frac{g(x_2) - g(x_1)}{x_2 - x_1}$  to find the average rate of change between  $x_1 = 61$  and  $x_2 = 76$ . Express your answer as a reduced fraction.

$x$	$g(x)$
31	61
58	76
61	58
76	31

$$\frac{f(76) - f(61)}{76 - 61} = \frac{31 - 58}{76 - 61} = \frac{-27}{15}$$

The greatest common factor of -27 and 15 is 3. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{-9}{5}$$